

Contents

Preface	vii
Dedication	ix
Review Committee	x
DEFORMATION AND MECHANICAL PROPERTIES: NEW INSIGHTS	
Deformation mechanisms in intermetallic compounds based on Nb ₃ Al J. Shyue, D.-H. Hou, M. Aindow and H. Fraser (Columbus, OH, USA)	1
Strain aging embrittlement of the ordered intermetallic compound NiAl J. M. Brzeski, J. E. Hack (New Haven, CT, USA), R. Darolia and R. D. Field (Cincinnati, OH, USA)	11
The effects of interstitial elements on the phase stability and mechanical behavior of selected intermetallics Y. Fahmy, C. T. Benfield and C. C. Koch (Raleigh, NC, USA)	19
On the deformation behavior of single crystalline Fe-Al J. T. Kandra, R. Mahapatra and E. W. Lee (Warminster, PA, USA)	29
Deformation twinning in intermetallic compounds—the dilemma of shears vs. shuffles F. Chu and D. P. Pope (Philadelphia, PA, USA)	39
HIERARCHICAL APPROACH TO PREDICTIVE FRAMEWORK	
Properties of ordered intermetallic alloys: first-principles and approximate methods M. J. Mehl, D. J. Singh and D. A. Papaconstantopoulos (Washington, DC, USA)	49
Computer simulation of dislocation core structure of metastable $\langle 111 \rangle$ dislocations in NiAl. Z. Y. Xie, C. Vailhe and D. Farkas (Blacksburg, VA, USA)	59
Estimates from atomic models of tension-shear coupling in dislocation nucleation from a crack tip. Y. Sun, G. E. Beltz and J. R. Rice (Cambridge, MA, USA)	67
Fracture properties of metals and alloys from molecular dynamics simulations C. S. Becquart, D. Kim, J. A. Rifkin and P. C. Clapp (Storrs, CT, USA)	87
Dislocation core structures in B2 NiAl alloys M. A. Crimp, S. C. Tonn and Y. Zhang (East Lansing, MI, USA)	95
ADVANCES IN MICROMECHANICAL MODELING	
Micromechanics of stress and strain-controlled high-cycle fatigue crack initiation of intermetallic compounds T. H. Lin and Q. Chen (Los Angeles, CA, USA)	103
Constitutive modeling of L1 ₂ intermetallic crystals A. M. Cuitiño and M. Ortiz (Providence, RI, USA)	111
On pressure-shear plate impact for studying the kinetics of stress-induced phase transformations J. C. Escobar and R. J. Clifton (Providence, RI, USA)	125
Non-Schmid effects and localized plastic flow in intermetallic alloys M. Dao and R. J. Asaro (La Jolla, CA, USA)	143
ADVANCED INTERMETALLICS: DESIGN AND INTERROGATION	
First principles phase stability study of the Ru-Nb-Zr system. J. D. Becker and J. M. Sanchez (Austin, TX, USA)	161

Characterization of mechanical properties in the Ir-Nb-Zr intermetallic system	169
A. M. Gyurko and J. M. Sanchez (Austin, TX, USA)	
Characterization of the deformation behavior of the Cr ₂ Nb ordered intermetallic system	177
G. E. Vignoul, J. K. Tien and J. M. Sanchez (Austin, TX, USA)	
Strength and toughness of beryllium-niobium intermetallic compounds	185
C. H. Henager, Jr.; S. M. Bruemmer (Richland, WA, USA) and J. P. Hirth (Pullman, WA, USA)	
Creep of intermetallic composites.	199
K. Sadananda and C. R. Feng (Washington, DC, USA)	
Thermo-mechanical stability of forged Ti-25Al-11Nb (at.%).	215
M. Long and H. J. Rack (Clemson, SC, USA)	
Experimental determination of low order structure factors in the intermetallic compound TiAl.	227
S. Swaminathan, I. P. Jones, N. J. Zaluzec, D. M. Maher and H. L. Fraser (Columbus, OH, USA)	
AUTHOR INDEX	237
SUBJECT INDEX	239

